



# Maintaining Your Cisco 7507 and Cisco 7507-MX Router

Your Cisco 7507 or Cisco 7507-MX router is configured to your order and is ready for installation and startup when it leaves the factory. After you install and configure your router, you might have to perform specific maintenance procedures and operations to ensure that the router is operating properly, to upgrade specific system components, or to replace components with spare parts or field-replaceable units (FRUs). This chapter describes procedures and maintenance operations required to maintain your Cisco 7507 or Cisco 7507-MX router; it includes procedures for installing, adding, and replacing internal router components and replaceable spare parts.



## Note

Detailed, up-to-date instructions (called *configuration notes*) are available on Cisco.com.

The replaceable system components fall into two categories: those that support online insertion and removal (OIR) and those that do not (requiring you to turn off the system power before replacement). For example, you can remove interface processors and replace them while the system is operating; however, you must shut down the system power before removing the RSP and the single power supply in a Cisco 7507 or Cisco 7507-MX with one power supply installed, or before accessing the chassis interior for any other reason.

This chapter provides specific component replacement instructions for upgrading, removing, or replacing the following components:

- Chassis panels
- Blower module assembly
- Chassis interface (CI) board
- Air filter
- LED board
- Power supply removal (power supply installation is discussed in the [“Installing Cisco 7507 and Cisco 7507-MX Power Supplies”](#) section on page 3-14)



## Caution

To help prevent problems, before performing any procedures in this chapter, review the [“Safety Recommendations”](#) section on page 2-2

**Note**

Interface processor-specific configuration information is included in the companion *Interface Processor Installation and Configuration Guide*, which shipped with your Cisco 7507 or Cisco 7507-MX router, as well as in the individual configuration notes that shipped with your spare interface processors.

## Tools Required for Maintenance Procedures

You need the following tools to replace any one of the Cisco 7507 or Cisco 7507-MX internal spares:

- 3/16-inch flat-blade or number 1 Phillips screwdriver to remove the top front chassis panel. Earlier chassis (the first several hundred shipped) use slotted screws, and later chassis use Phillips screws to secure the top front panel to the chassis. No tools are required to remove the bottom front chassis panel. The 3/16-inch flat-blade screwdriver can also be used for the DC-input terminal connections on the DC-input power supplies.
- Number 1 Phillips or 3/16-inch flat-blade screwdriver to remove the top front chassis panel. No tools are required to remove or install the LED board.
- Small hand vacuum to clean the air filter. Have a spare filter on hand so that you can replace it if necessary. Do not leave the system operating without a filter or bottom front panel.
- Long (12 inches [30.48 cm] or longer) 3-mm center-hex Allen-head wrench or driver for the captive screws on the chassis blower. (A T-handle driver is included with blower spares kits.)
- Flashlight (optional).

## Overview of Maintenance Procedures for the Cisco 7507 and Cisco 7507-MX

To replace internal spares, you must remove the chassis cover panel and expose the chassis interior.

**Warning**

If the power is not shut down before you remove chassis cover panels, high current can become a hazard. When the power harness cover is removed, the high current present in the wiring and on the backplane also becomes a hazard. Removing metal cover panels when the system is operating also compromises the EMI integrity of the system. Therefore, always turn off the system power before removing metal cover panels, and remove cover panels only when it is necessary to replace internal components.

# Maintenance Procedures for the Cisco 7507 and Cisco 7507-MX

The specific maintenance procedures for your Cisco 7507 or Cisco 7507-MX router are described in the following sections:

- [Removing Cisco 7507 and Cisco 7507-MX Power Supplies](#), page 6-3

To install power supplies in the Cisco 7507 or Cisco 7507-MX, see the “[Installing Cisco 7507 and Cisco 7507-MX Power Supplies](#)” section on page 3-14.

- [Removing and Replacing the Cisco 7507 and Cisco 7507-MX Front Chassis Panels](#), page 6-6
- [Cleaning and Replacing the Cisco 7507 and Cisco 7507-MX Air Filter](#), page 6-10
- [Replacing Cisco 7507 and Cisco 7507-MX Internal Components](#), page 6-11



**Warning**

Before working on a system that has an on/off switch, turn OFF the power and unplug the power cord.

## Removing Cisco 7507 and Cisco 7507-MX Power Supplies

This section describes the procedure for removing power supplies from the Cisco 7507 and Cisco 7507-MX.



**Note**

The procedure for installing power supplies in the Cisco 7507 and Cisco 7507-MX is included in the “[Installing Cisco 7507 and Cisco 7507-MX Power Supplies](#)” section on page 3-14.

Redundant power supplies support online insertion and removal (OIR); if you remove one power supply, the second supply immediately ramps up to supply full power to the system to maintain uninterrupted operation.

If you have only one power supply in your Cisco 7507 or Cisco 7507-MX, you must turn off power before removing and replacing it. Always install a filler plate over an empty power supply bay to protect the connectors from contamination.



**Warning**

When stranded wiring is required, use approved wiring terminations, such as closed-loop or spade-type with upturned lugs. These terminations should be the appropriate size for the wires and should clamp both the insulation and the conductor.



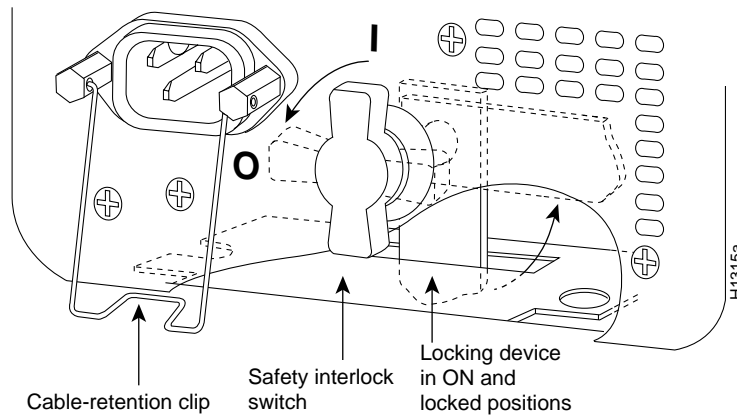
**Warning**

Before performing any of the following procedures, ensure that power is removed from the DC circuit. To ensure that all power is OFF, locate the circuit breaker on the panel board that services the DC circuit, switch the circuit breaker to the OFF position, and tape the switch handle of the circuit breaker in the OFF position.

Use the following procedure to remove a power supply:

- Step 1** If you are replacing the DC-input power supply, turn off the power supply DC power source.
- Step 2** On the power supply to be removed, turn off the switch. The interlock tab will retract into the unit.

**Figure 6-1** Power Supply Interlock (Cisco 7507 and Cisco 7507-MX AC-Input Power Supply Shown)



**Step 3** Disconnect the power cable from the power source.

**Step 4** For the AC-input power supply: Lift up the cable retention clip and remove the power cable from the AC receptacle.

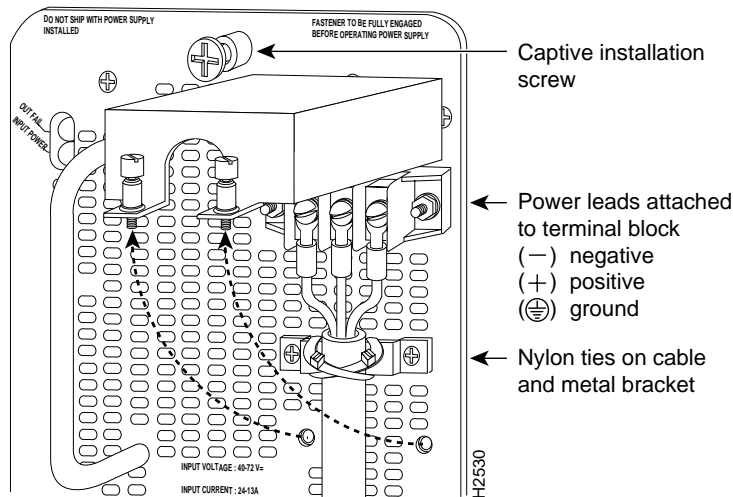
For the DC-input power supply: Loosen the captive installation screws on the terminal block cover, lift the cover, use the wire cutters to cut the nylon strain-relief ties, and then remove the three power leads (remove the ground lead last) from the terminal block.



**Warning**

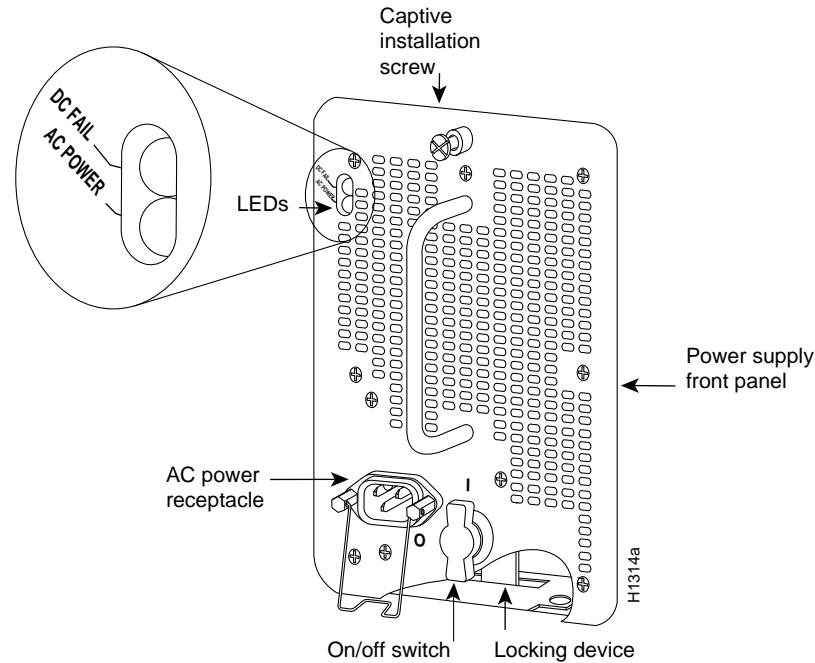
The illustration shows the DC power supply terminal block. Wire the DC power supply using the appropriate lugs at the wiring end, as illustrated. The proper wiring sequence is ground to ground, positive to positive (line to L), and negative to negative (neutral to N). Note that the ground wire should always be connected first and disconnected last.

**Figure 6-2** Removing Nylon Cable Ties and Power Leads from a Cisco 7507 and Cisco 7507-MX DC-Input Power Supply



**Step 5** Use a screwdriver to loosen and remove the captive installation screw on the top of the supply. See [Figure 6-3](#).

**Figure 6-3** Power Supply Captive Installation Screw (Cisco 7507 and Cisco 7507-MX AC-Input Power Supply Shown)



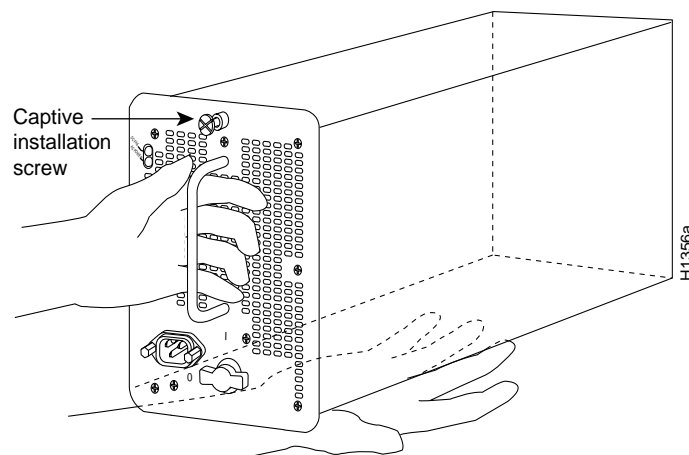
- Step 6** Grasp the power supply handle with one hand and place your other hand underneath to support the bottom of the power supply as shown in [Figure 6-4](#).



**Warning**

Keep hands and fingers out of the power supply bays. High voltage is present on the power backplane when the system is operating.

**Figure 6-4** Handling a Power Supply (Cisco 7507 and Cisco 7507-MX AC-Input Power Supply Shown)



- Step 7** Pull the power supply out of the bay and put it aside.

- Step 8** If the power supply bay is to remain empty, install a power-supply filler plate over the opening and secure it with a mounting screw. This protects the inner chassis and the connectors in the rear of the bay from dust and exposed current levels when the chassis is powered on.



**Note** If you plan to replace an AC-input power supply, install it using the procedure in the [“Cisco 7507 and Cisco 7507-MX Installation Considerations”](#) section on page 3-14.

If you plan to replace a DC-input power supply, install it using the procedure in the [“Installing Cisco 7507 and Cisco 7507-MX Power Supplies”](#) section on page 3-14. Rewire it using the procedure in the [“Connecting Power to the Cisco 7505 DC-Input Power Supply”](#) section on page 3-9.

This completes the power supply removal procedure.

## Removing and Replacing the Cisco 7507 and Cisco 7507-MX Front Chassis Panels

This section provides the procedures for removing and replacing the chassis top front panel and bottom front panel so you can access internal chassis components or replace panels that have been damaged.

The bottom front chassis panel is vented and works with the chassis blower to draw cooling air into the chassis. If the bottom panel is not installed correctly, or if it is cracked or broken, the flow of cooling air can be redirected and might cause overheating inside the chassis. Replace panels if they are cracked or broken, or if damage prevents them from fitting on the chassis properly.

Always shut down the system before removing the chassis top front panel. With the top front panel removed, 100A of current is exposed on the front of the backplane and around the power supply wiring harnesses.



**Warning**

**Before working on a chassis or working near power supplies, unplug the power cord on AC units; disconnect the power at the circuit breaker on DC units.**



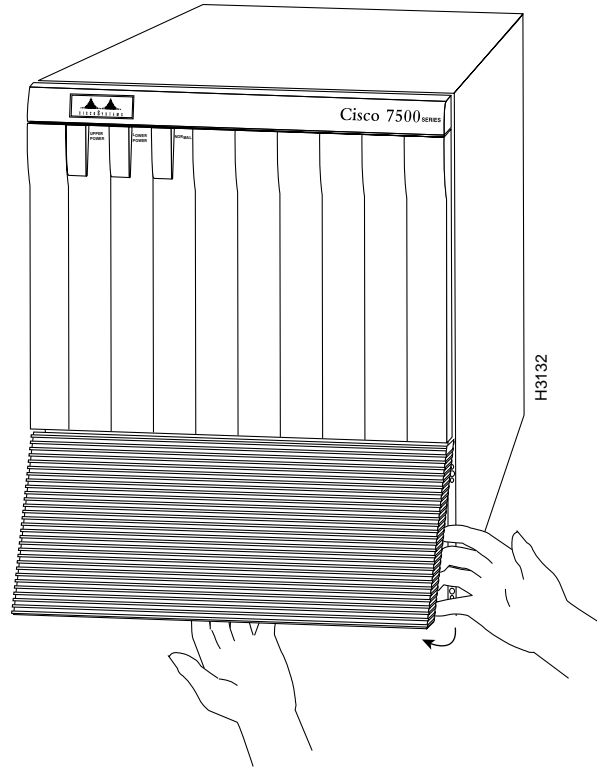
**Note**

You must remove the bottom front panel before you can remove the top front panel. The EMI shielding around the outer edge of the top front panel acts as a spring and compresses when you push the panel into the chassis to keep the panel fitted tightly into the chassis opening.

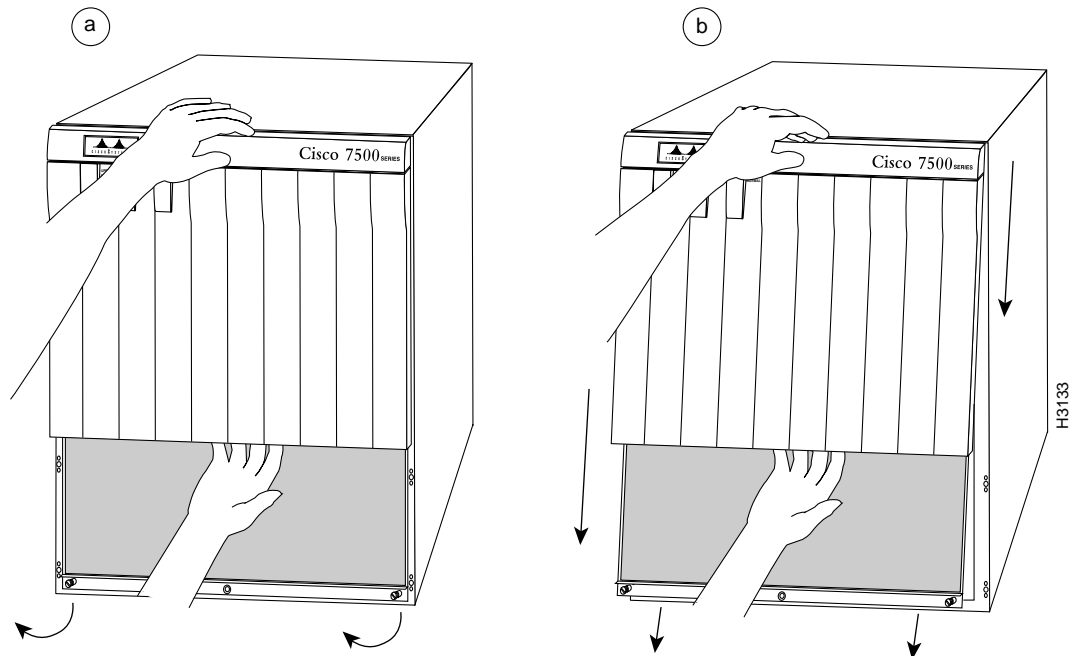
Use the following procedure to remove the front panels:

- Step 1** Grasp the bottom edge of the bottom chassis panel and pull the panel out about 1 inch (2.54 cm). Place your fingers behind the sides of the panel and pull it off the chassis.

**Figure 6-5** Removing the Cisco 7507 and Cisco 7507-MX Bottom Front Panel



- Step 2** On the top front panel, use a number 1 Phillips or a 3/16-inch flat-blade screwdriver to loosen the two captive screws at the bottom edge of the panel frame. (See [Figure 6-6](#).)

**Figure 6-6** Removing the Cisco 7507 and Cisco 7507-MX Top Front Panel

- Step 3** Place one hand against the top front center of the panel to brace it. (See [Figure 6-6a](#).) The top of the panel acts as a pivot point when you pull the bottom out and away from the chassis.
- Step 4** With your other hand, grasp the front of the panel by inserting your fingers into the opening on the underside of the front plastic panel. (See the right hand in [Figure 6-6a](#).)
- Step 5** While pushing slightly against the top of the panel to constrain it, pivot the bottom edge of the frame outward about 2 inches (5.08 cm). (See [Figure 6-6a](#).) Because of the tightly compressed EMI shielding, you will have to use significant force to pull the bottom of the panel outward. However, be careful that you do not pull the panel more than 2 inches (5.08 cm) away from the chassis, or you might damage the inner bezel or LED board.
- Step 6** When the bottom of the frame clears the chassis opening, keep your hands in the same positions and pull the panel down and off the chassis. (See [Figure 6-6b](#).)

**Note**

Refer to the appropriate sections depending on the replacement procedures you need to perform. Then, to replace the front chassis panel, proceed to the following procedure.

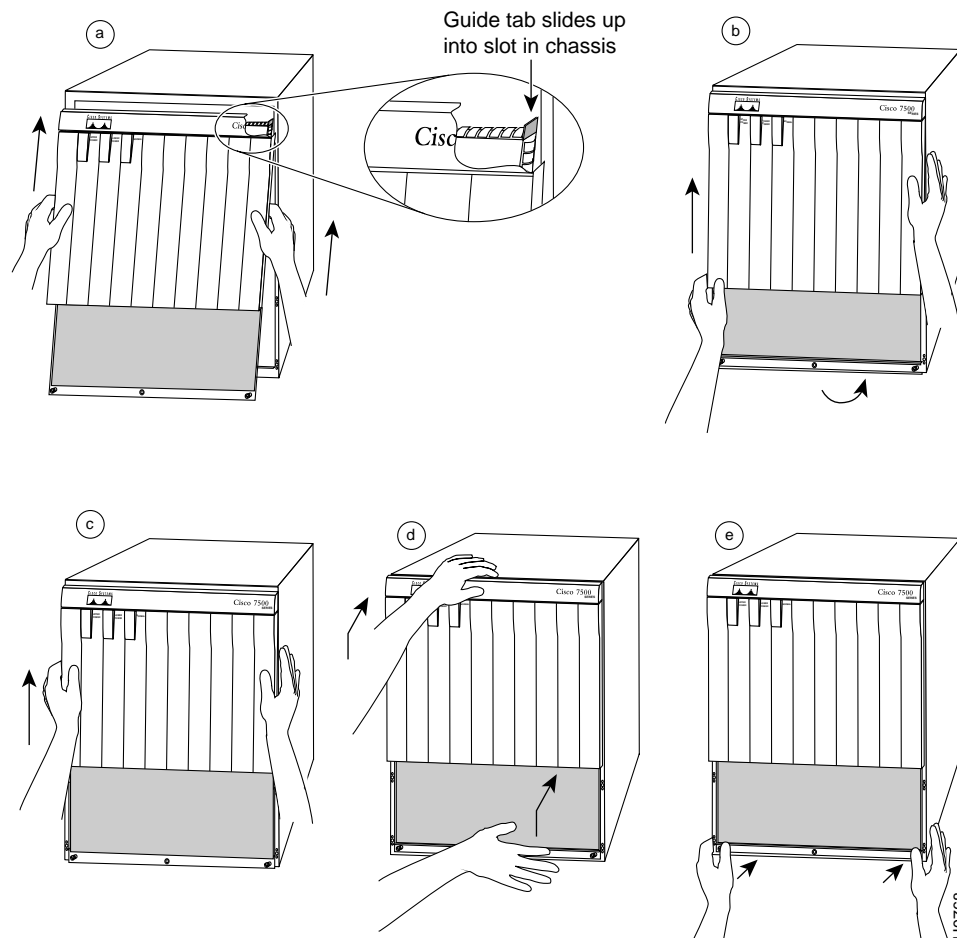
Use the following procedure to replace the front chassis panels:

- Step 1** Grasp the sides of the top panel with both hands.
- Step 2** Two guide tabs at the top edges of the panel fit into two slots in the top edges of the chassis opening. Tilt the top of the panel back (away from you) about 30 degrees from vertical and slide the two guide tabs into the chassis slots.
- Step 3** Check the top of the panel to make sure it is lined up with the top of the chassis opening. Failure to align the panel at this point can result in equipment damage when you perform the next step.



- Step 4** Push the panel upward to push the tabs into the slots and pivot the bottom of the panel toward the chassis until the panel frame meets the chassis. Maintain a steady upward pressure to keep the guide tabs in the chassis slots.
- Step 5** When the panel is flush against the front of the chassis, push the panel upward until the bottom of the panel is level with the bottom of the chassis opening.
- Step 6** Place the palm of one hand against the top front center of the panel to brace it and hold it in place, and place the palm of your other hand against the lip on the bottom edge of the frame.
- Step 7** Use your hand at the bottom of the frame to push the bottom of the panel upward and back into the chassis opening until the tabs on the front sides of the panel are flush against the front of the chassis. You will have to use significant force to compress the EMI shielding enough to fit into the opening. If the panel resists, pull it slightly downward and make sure that the panel is lined up with the top and sides of the opening in the chassis.

**Figure 6-7** Replacing the Cisco 7507 and Cisco 7507-MX Front Panels



- Step 8** When the tabs on the front sides of the panel are flush against the sides of the chassis, tighten the two captive screws in the bottom edge of the frame.
- Step 9** To replace the bottom front panel, place the ball studs on the back of the panel over the holes in the front lip of the chassis and push the panel onto the chassis until the ball studs snap into place.

This completes the chassis front panel removal and replacement procedures.

## Cleaning and Replacing the Cisco 7507 and Cisco 7507-MX Air Filter

In the Cisco 7507 and Cisco 7507-MX, the air filter removes dust from the air drawn in by the blower. The edges of the air filter fit into the lower frame of the top front chassis panel. You should remove and vacuum the air filter at least once every 2 weeks, or more often in unusually dusty environments. If vacuuming is not possible, you can remove the filter and wash it, but ensure that it is completely dry before replacing it in the chassis. Have spares on hand in case the filter tears or becomes worn. A dirty filter can prohibit the flow of cooling air into the chassis and might cause an overtemperature condition. If you can remove, clean, and replace the filter within 5 minutes, you do not need to shut down the system power.



### Caution

Do not operate the system for more than 5 minutes without a filter installed. Never place a wet filter in the chassis; the moisture drawn into the chassis can damage the equipment.

You need to remove the bottom front chassis panel to access and remove the filter, and then move the filter away from the chassis for vacuuming. Vacuuming can dislodge substantial amounts of dust, and cleaning the filter near the opened chassis can allow loose particles to enter the chassis through the unfiltered blower. Therefore, we recommend that you briefly remove the panel to clean it, and then immediately replace it in the chassis.

Use the following procedure to check the air filter and clean or replace it if necessary:

- Step 1** Remove the bottom front panel. (See Step 1 through Step 6 in the procedure for removing front cover panels in the [“Removing and Replacing the Cisco 7507 and Cisco 7507-MX Front Chassis Panels”](#) section on page 6-6.) The edges of the air filter fit into the lower frame of the top front panel.
- Step 2** Remove the filter by grasping it in the center and pulling the edges out of the frame.
- Step 3** Check the condition of the filter. If the filter is extremely dusty, or if it appears worn or torn, discard it after you ensure that you have a replacement available. Proceed to Step 7 to install the new filter.
- Step 4** Move the filter away from the chassis and vacuum it thoroughly. Do not vacuum the filter when it is installed or near the chassis opening; doing so can dislodge substantial amounts of dust and allow loose particles to enter the chassis.
- Step 5** If the filter needs washing, refer to Step 7 to install a temporary replacement filter. If a replacement is not available, shut down the system until the filter dries and you can safely replace it.
- Step 6** Wash the filter in running water, or discard it and replace it with a new filter. The filter must be thoroughly dry before you replace it in the chassis.
- Step 7** Place the new or clean, *dry* filter (or a temporary replacement filter) over the frame and push the edges into the frame with your fingers. Ensure that all edges are tucked into the frame.
- Step 8** Replace the bottom front panel by aligning the bottom of the panel with the holes on the front of the chassis. Push the edges in until the ball studs snap into place.



### Caution

Never place a wet filter in the chassis; the moisture drawn into the chassis can damage the equipment.

## Replacing Cisco 7507 and Cisco 7507-MX Internal Components

The replaceable internal components in the Cisco 7507 and Cisco 7507-MX are accessible by removing the top and bottom front chassis panels. Always turn off the system power before removing the chassis top front panel. With the top front panel removed, 100A of current is exposed on the front of the backplane and around the power supply wiring harnesses. Replace the internal components only if you are advised to do so by a Cisco service representative.

This section contains replacement procedures for the following equipment:

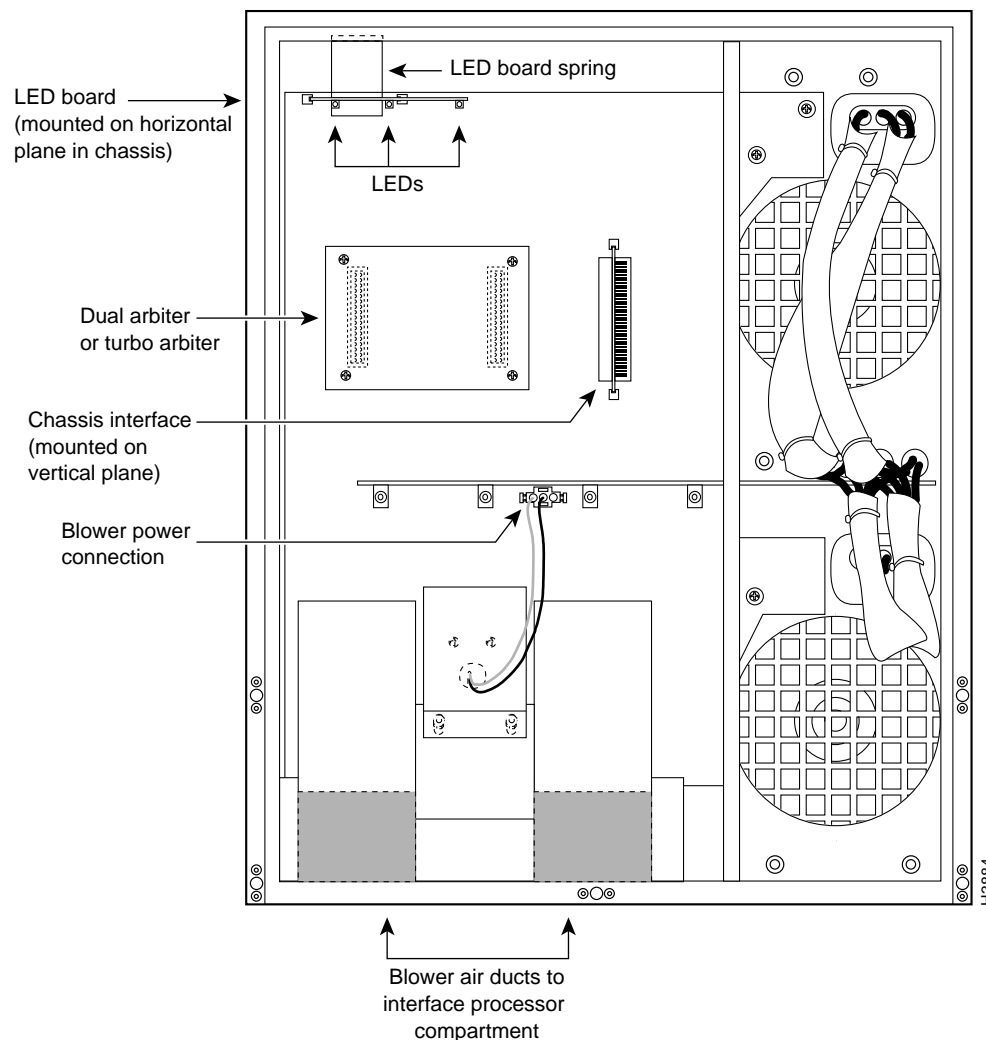
- Chassis interface (MAS-7500CI=)
- LED board (MAS-7KLED=)
- Blower assembly (MAS-7KFAN=)



Note

Figure 6-8 shows the locations of each of these components inside the front cavity of the chassis (shown with both front chassis panels removed).

Figure 6-8 Cisco 7507 and Cisco 7507-MX Internal Chassis Components



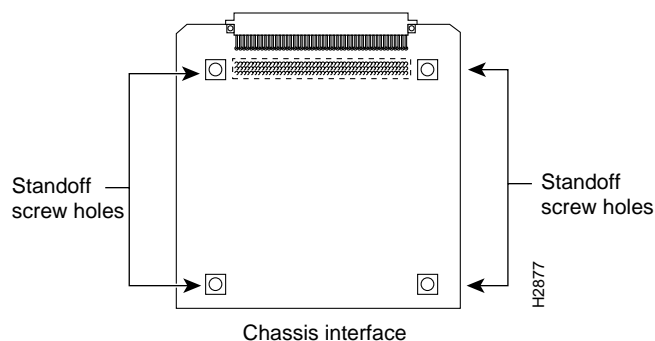
**Warning**

Before working on a chassis or working near power supplies, unplug the power cord on AC units; disconnect the power at the circuit breaker on DC units.

## Removing and Replacing the Chassis Interface in the Cisco 7507 and Cisco 7507-MX

The chassis interface (CI) (shown in [Figure 6-9](#)) provides environmental monitoring and logic functions for the Cisco 7507 and Cisco 7507-MX. The CI is a printed circuit board mounted to the noninterface processor side (rear) of the backplane. The CI plugs directly into the backplane through the edge connector on the CI and a connector on the rear of the backplane. The chassis interface ships as a spare part as Product Number MAS-7500CI=. Replace the CI *only* if it fails.

**Figure 6-9** 7500 Series Chassis Interface



Use the following procedure to remove the CI:

- 
- Step 1** Turn off the system power switch and disconnect the power cable from the power source.
  - Step 2** Attach an ESD-preventive strap (your own or the one supplied with the FRU) between you and an unpainted chassis surface.
  - Step 3** Remove the front panels. (See Step 1 through Step 6 in the procedure for removing front cover panels in the [“Removing and Replacing the Cisco 7507 and Cisco 7507-MX Front Chassis Panels”](#) section on page 6-6.)
  - Step 4** Locate the CI board on the rear of the backplane. (See [Figure 6-8](#).)
  - Step 5** Carefully remove the CI from its backplane connector.

**Note**

If necessary, gently rock the CI from side to side *very slightly* to dislodge the pins from the backplane connector.

- 
- Step 6** Place the CI in an antistatic bag.
- 

This completes the CI removal procedure.

Use the following procedure to replace the CI:

- 
- Step 1** Attach an ESD-preventive strap (your own or the one supplied with the FRU) between you and an unpainted chassis surface.
  - Step 2** Position the CI in the vertical orientation shown in [Figure 6-8](#), with the connector along the edge of the CI facing the CI backplane connector. Both CI connectors are keyed so you cannot install the CI incorrectly; however, to prevent damage to the connector pins, determine the correct connection orientation before you install the CI.
  - Step 3** Attach the CI edge connector to the connector on the backplane. Align the CI edge connector keys with the backplane connector keys; the CI should attach to the backplane connector with a moderate amount of force. Do not force the CI connector onto the backplane connector. It might be necessary to gently rock the connectors into place.
  - Step 4** Replace the top and bottom front chassis panels. (See Step 1 through step 9 in the procedure for replacing front cover panels in the [“Removing and Replacing the Cisco 7507 and Cisco 7507-MX Front Chassis Panels”](#) section on page 6-6.)
- 

This completes the CI replacement procedure for the Cisco 7507 and Cisco 7507-MX.

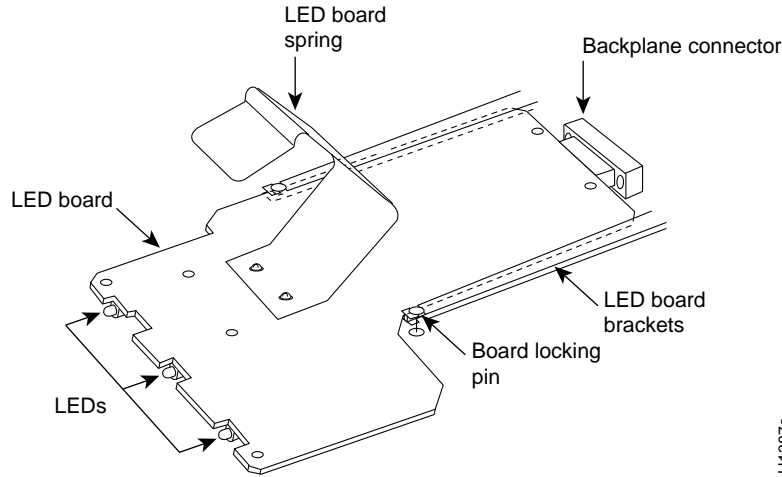
## Removing and Replacing the Cisco 7507 and Cisco 7507-MX LED Board

The LED board contains the three status LEDs that provide system and power supply status on the front panel. Replace the LED board only if it fails or if one of the LEDs fails.

The LED board is mounted on a horizontal plane near the top of the chassis interior. See [Figure 6-8](#). The board slides into two brackets mounted to the front of the backplane and attaches to a connector on the backplane. Two pins in the brackets and a metal spring keep the board in place. [Figure 6-10](#)

Use the following procedure to remove the existing LED board:

- 
- Step 1** On each installed power supply, turn off the power switch and disconnect the power cable from the power source.
  - Step 2** Remove the front panels. (See Step 1 through Step 6 in the procedure for removing front cover panels in the [“Removing and Replacing the Cisco 7507 and Cisco 7507-MX Front Chassis Panels”](#) section on page 6-6.)
  - Step 3** Locate the LED board (see [Figure 6-8](#)), which is mounted on a horizontal plane in two plastic brackets.
  - Step 4** Two steel pins near the front of the brackets hold the board in place. [Figure 6-10](#) On each pin, place your thumb on the top of the pin and your forefinger underneath the bracket to support it; press the pins down and out of the guide holes in the board.

**Figure 6-10 LED Board (Cisco 7507 and Cisco 7507-MX)**

**Caution** To avoid damage from ESD, handle the LED board by the edges only.

- Step 5** Grasp the edges of the board and place a finger on the top of the LED board spring to depress it.
- Step 6** Keep the spring depressed as you pull the board straight out at a 90-degree orientation to the backplane.
- Step 7** Place the board in an antistatic bag if returning it to the factory.

This completes the LED board removal procedure.

Use the following procedure to install a new LED board:

- Step 1** Ensure that the power supplies are turned off.
- Step 2** Hold the board with the LEDs toward you, with the spring on the top, and with the LEDs and components on the underside of the board. Grasp the edges of the board and place a finger on the top of the LED board spring to depress it.
- Step 3** Slide the back edge of the board (the end with the connector) into the guides in the plastic brackets. [Figure 6-10](#)
- Step 4** Keep the spring depressed as you push the board straight in at a 90-degree orientation to the backplane until the connector on the LED board is fully seated in the backplane connector.
- Step 5** Release the spring; it will spring up against the chassis ceiling.
- Step 6** A steel pin at the front of each bracket holds the board in place. On each side, place your thumb underneath and your forefinger on top of the bracket to support it, and press the pin up through the guide hole in the board. If the pin does not extend fully upward, push the board firmly into the backplane connector until the pins align with the guide holes in the board.
- Step 7** Replace the top and bottom front chassis panels. (See Step 1 through Step 9 in the procedure for replacing front cover panels in the [“Removing and Replacing the Cisco 7507 and Cisco 7507-MX Front Chassis Panels”](#) section on page 6-6.)

This completes the LED board installation procedure.

Use the following procedure to verify that the new LED board is installed correctly:

- 
- Step 1** Turn on the power switches on all installed power supplies.
- Step 2** After the system boots successfully, verify that the normal LED goes on. If it does not, do the following:
- Check the normal LED on the RSP. If it is not on, the system has not reached normal operating state. See the troubleshooting procedures in [Chapter 6, “Maintaining Your Cisco 7507 and Cisco 7507-MX Router.”](#)
  - If the normal LED on the RSP is on, the system software is functioning properly. On all installed power supplies, turn the switch off and reseal the LED board by following Step 1 through Step 7 of the preceding procedure for installing a new LED board.
- Step 3** Verify that the upper and lower power LEDs go on for the installed power supplies. If they do not go on, check the LEDs on the AC-input (or DC-input) power supplies in the back of the chassis as follows:
- Check the AC power (or input power) LED on the power supply for the front panel LED that does not light. If the AC power (or input power) LED is on, the power supply is functioning properly. Turn off the system power and reseal the LED board by following Step 1 through Step 7 of the preceding procedure for installing a new LED board.
  - If the power supply AC power (or input power) LED is not on, or if the DC fail (or out fail) LED is on, the power supply has failed. See the troubleshooting procedures in [Chapter 8, “Troubleshooting a Cisco 7500 Series Router.”](#)
- Step 4** If after several attempts the LEDs do not operate properly, or if you experience trouble with the installation, contact a service representative for assistance.
- 

## Removing and Replacing the Cisco 7507 and Cisco 7507-MX Blower Assembly

The chassis blower draws cooling air in through the chassis bottom front panel and sends it up through the floor of the inner rear compartment to cool the RSP(s) and interface processors. The absence of cooling air can cause the interior of the chassis to heat up and might cause an overtemperature condition.



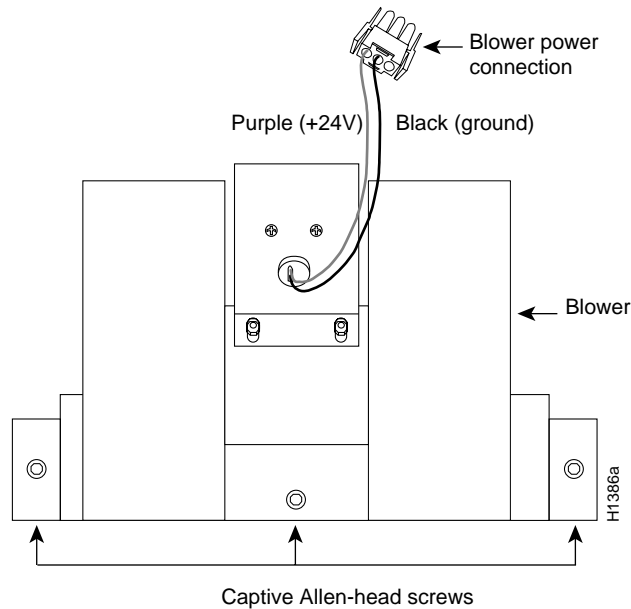
### Caution

Never operate the system if the blower is not functioning properly or if one is not installed. An overtemperature condition can result in severe equipment damage.

---

The blower is located at the bottom of the chassis interior. Two air ducts on the rear of the blower, shown shaded in [Figure 6-8](#), fit snugly into the two cutouts in the backplane. The blower is secured to the backplane with three large captive Allen-head screws, which are shown in [Figure 6-11](#).

Figure 6-11 Chassis Blower (Cisco 7507 and Cisco 7507-MX)

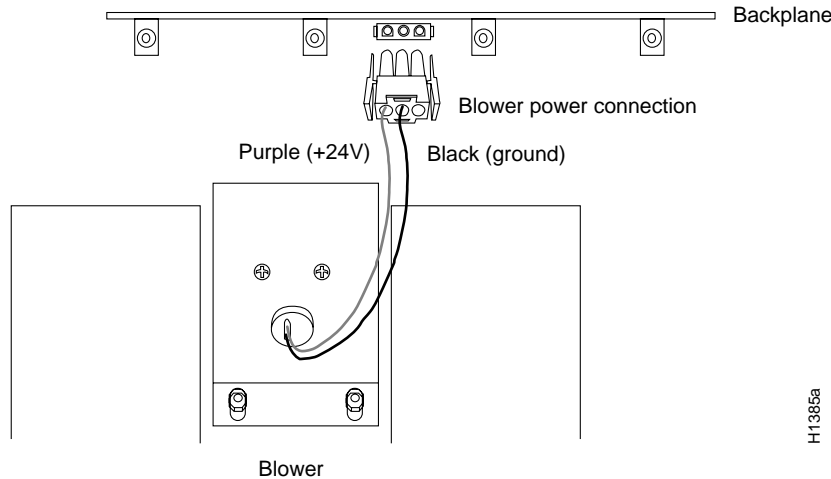
**Warning**

**Before working on a chassis or working near power supplies, unplug the power cord on AC units; disconnect the power at the circuit breaker on DC units.**

Use the following procedure to remove the existing chassis blower:

- Step 1** On each installed power supply, turn off the power switch and unplug the power cable from the power source.
- Step 2** Remove the front panels. (See Step 1 through Step 6 in the procedure for removing front cover panels in the [“Removing and Replacing the Cisco 7507 and Cisco 7507-MX Front Chassis Panels”](#) section on page 6-6.)
- Step 3** Locate the blower (see [Figure 6-8](#)), which is mounted to the bottom of the backplane. Also, locate the blower power connector, which is connected to a port in the backplane under the white power bar. Note the orientation of the power connector and its orientation in the backplane port.



**Figure 6-12 Blower Power Connection (Cisco 7507 and Cisco 7507-MX)**

- Step 4** Disconnect the blower 24V DC power connector from the backplane by pinching the sides of the connector inward and pulling the connector out and away from the backplane. Lay the connector and wiring on top of the blower to keep it out of the way while you remove the blower.
- Step 5** Using a long Allen wrench, loosen each of the three captive screws by turning them counterclockwise two full turns. Use the access hole in the lower lip of the chassis to access this screw. Insert the wrench straight into the hole at a 90-degree angle to the backplane. If necessary, use a flashlight to locate and guide the wrench to the screw.
- Step 6** When you have loosened all three screws, unscrew them from the backplane. These captive screws are fixed to the blower; do not attempt to completely remove them.
- Step 7** Two air ducts on the blower extend into the two cutouts in the backplane. (See [Figure 6-8](#).) Grasp the blower with both hands and pull it outward (toward you and away from the backplane) while gently rocking it slightly up and down, and left to right, to free the blower ducts from the backplane.
- Step 8** If the blower does not move, check the three captive screws to ensure that they are free of the backplane. (They are fixed to the blower, but they should spin freely.)
- Step 9** Pull the blower outward using steady pressure and wiggling it until it frees the backplane.
- Step 10** Lift the blower out of the chassis and place it aside, out of traffic areas.

**Note**


---

Do not replace the front chassis panels until you install a new blower.

---

**Caution**


---

Never operate the system if the blower is removed or if it is not functioning properly. An overtemperature condition can result in severe equipment damage.

---

This completes the chassis blower assembly removal procedure.

Use the following procedure to install a new chassis blower assembly:

- 
- Step 1** Ensure that the power supplies are turned off.



**Warning**

**Before working on a chassis or working near power supplies, unplug the power cord on AC units; disconnect the power at the circuit breaker on DC units.**

---

- Step 2** Note the orientation of the two air ducts on the back of the new blower and the two cutouts in the backplane. The two ducts fit snugly into the backplane cutouts.
- Step 3** Hold the blower with the two air ducts facing away from you and the three captive screws along the bottom of the side facing you (shown in [Figure 6-11](#)). Lay the connector and wiring on top of the blower to keep it out of the way while you install the blower.
- Step 4** Place the blower into the front chassis cavity so it rests on the floor of the chassis, and then lift the blower up slightly and align the air ducts with the backplane cutouts.
- Step 5** Push the air ducts into the cutouts. If necessary, wiggle the blower slightly as you push it inward (the ducts fit snugly into the cutouts) until the edges of the blower meet the backplane.
- Step 6** Use the Allen wrench to turn each of the three captive installation screws clockwise about two full turns to ensure that they are aligned in the backplane holes; you should not feel much resistance.
- The far left screw is slightly obscured by the left lip of the chassis and the left blower air duct, but is accessible by inserting a long Allen wrench into the access hole in the lower lip of the chassis. Insert the wrench straight into the hole at a 90-degree angle to the backplane. If necessary, use a flashlight to locate and guide the wrench to the screw.
- If a screw is hard to turn, do not force it. Wiggle the chassis around, ensure that the screw is straight, and try tightening the screw again. If after several attempts the screw does not tighten easily, see the installation verification procedure that follows for further instructions.
- Step 7** Locate the blower power connection port, which is under the white power bus bar on the backplane. Both the port and the connector are keyed so the flat edge of the connector is at the bottom.
- Step 8** Hold the blower 24V DC power connector with the flat edge down and the red or purple (+24V) wire to the left, and plug the connector into the backplane connector. When the connector is fully inserted, two plastic tabs snap outward to secure the connector in place.
- Step 9** Replace the top and bottom front chassis panels. (See Step 1 through Step 9 in the procedure for replacing front cover panels in the [“Removing and Replacing the Cisco 7507 and Cisco 7507-MX Front Chassis Panels”](#) section on page 6-6.)
- 

This completes the chassis blower assembly installation procedure.

Use the following procedure to verify that the new blower is installed correctly:

- 
- Step 1** Turn on all AC-input (or DC-input) power supplies. The AC power LED on all AC-input power supplies (or the input power LED on the DC-input power supplies) should go on.

If any do not, or if the DC fail LED on the AC-input power supply (or the out fail LED on the DC-input power supply) is on, the power supply has failed. (If required, see the troubleshooting procedures in [Chapter 8, “Troubleshooting a Cisco 7500 Series Router.”](#))

- Step 2** Listen for the blower; you should immediately hear it operating. In a noisy environment, it might not be possible to hear the blower operating. If this is the case, place your hand near the exhaust vent and feel for air coming from the vent. If you do not hear the blower or feel any air coming from the exhaust vent, turn off the system power and do the following:
- a. Remove the top and bottom front chassis panels. (See Step 1 through Step 6 in the procedure for removing front cover panels in the [“Removing and Replacing the Cisco 7507 and Cisco 7507-MX Front Chassis Panels”](#) section on page 6-6.)
  - b. Check the blower power connector to ensure that it is fully seated in the backplane port; pinch the sides of the connector and push it firmly into the port.
  - c. Check the two wires between the blower and the power connector: the red or purple +24V wire and the black ground wire. Ensure that they have not pulled out of the power connector; pinch each wire near the back connector and push it firmly into the connector.
  - d. Replace the front chassis panels. (See Step 1 through Step 9 in the procedure for replacing front cover panels in the [“Removing and Replacing the Cisco 7507 and Cisco 7507-MX Front Chassis Panels”](#) section on page 6-6.)
- Step 3** Turn the power supplies back on, and check again for proper blower operation.
- If after several attempts the blower does not operate, or if you experience trouble with the installation, contact a service representative for assistance.
- 

This completes the blower replacement procedure.

